

Midpoint, Distance, Equation Formats

The Formulae

Distance

$$d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

Midpoint

$$MP = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Equation formats

Standard

$$Ax + By = C$$

- ▶ A, B, and C are all integers
- ▶ A must be positive

Point-Slope

$$y - y_0 = m(x - x_0)$$

- ▶ m is the slope
- ▶ (x_0, y_0) is any point on the line

Slope-Intercept

$$y = mx + b$$

- ▶ m is the slope
- ▶ b is the y intercept

Horizontal Line

$$y = k$$

- ▶ k is a number
- ▶ Slope = 0

Vertical Line

$$x = k$$

- ▶ k is a number
- ▶ Slope = undefined

Useful Formulae

Weighted Averages

$$Avg = \frac{v_1 q_1 + v_2 q_2}{q_1 + q_2}$$

v_1, v_2 = original values
 q_1, q_2 = quantities

Simple Interest

$$I = PRt$$

- ▶ I = Interest amount
- ▶ R = Interest rate (as a decimal, not a percent)
- ▶ t = Time, usually in years

Mixtures

$$Mix = (\text{part/whole})$$

$$Mix\% = (\text{part/whole}) \times 100$$